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EXAMINER

ROSARIO, DENNIS

ART UNIT PAPER NUMBER

2621

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/917,961

Applicant(s)

BEAN ET AL.

Examiner

Dennis Rosario

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Amendment*

1. The amendment was received on April 12, 2005. Claims 1-5,7-9 and 12-22 are pending.

### *Response to Arguments*

2. Applicant's arguments filed 4/12/2005 have been fully considered but they are not persuasive.

Page 7, last paragraph of the remarks states, "Bacs does not disclose a 'plurality of shutter exposure patterns' or a 'digital still image capturing device [that] captures only a single image of the object in response to the application of the selected shutter exposure pattern [to the shutter device],' as is recited in claim 1."

With regard to "Bacs does not disclose a 'plurality of shutter exposure patterns'..."; Bacs does disclose a plurality of shutter exposure patterns as shown in figs. 6(a)-6(f).

With regard to "Bacs does not disclose ... a 'digital still image capturing device [that] captures only a single image of the object in response to the application of the selected shutter exposure pattern [to the shutter device],' as recited in claim 1.", Bacs does disclose a digital still image capturing device as shown in fig. 8, num. 90 that captures only a single image via a "frame-by-frame basis" in col. 11, line 18 of the object as shown in fig. 1, num. 26 in response to the application of the "selected" in col. 6, line 20 shutter exposure pattern via a method of "parallax scanning pattern" in col. 6, line 20 as shown in fig. 8, as numerals 96 (four white blocks), 92c (one white block) and 92 (all the diagonally shaded blocks) to the shutter device of fig. 8, num. 90.

Thus, the shutter device captures an image or a single frame of object 26 of fig. 1 using the pattern of fig. 8: num. 96 (four white blocks), num. 92c (one white block) and numeral 92 (all the diagonally shaded blocks) using the parallax scanning pattern method. Note that the pattern, fig. 8: num. 96 (four white blocks), 92c (one white block), 92 (all the diagonally shaded blocks), of fig. 8, num. 90 can be modified to "readily introduce" in col. 10, lines 63,64 more white blocks, 92(c), in col. 10, lines 63-66 which states:

"Moreover, as indicated at 92(c), driver 94 can **readily introduce** one or more parallax scanning or stationary lens apertures, in addition to aperture 96..."

Thus, the pattern of fig. 8: num. 96 (four white blocks), num. 92c (one white block) and numeral 92 (all the diagonally shaded blocks) can be modified to form a checkered pattern by readily introducing more stationary lens apertures for one frame via the method of using apertures. In contrast to a single frame or image, a pattern can be formed using the parallax scanning method to create a rotating effect of fig. 8,num. 96 that rotates around the stationary aperture as shown in fig. 8,num. 92c where each movement of 96 corresponds to a frame.

Page 8, first paragraph of the remarks states, "First, the 'parallax scanning pattern' disclosed in Bacs is not a shutter exposure pattern... In stark contrast, the invention of claim 1 is directed to capturing only a single image of an object in response to application of a shutter exposure pattern."

With regard to "First, the 'parallax scanning pattern' disclosed in Bacs is not a shutter exposure pattern...", For each frame instant, Bacs can use two parallax scanning patterns or "one or more parallax scanning" in col. 10, line 64 as shown in figs. 6(a)-6(f), or a parallax scanning pattern of figs. 6(a)-6(f) and a single aperture 96 of fig. 8 or "apertures" in col.10, line 65, or "plural apertures" in col. 7, line 65 to create a single pattern as shown in fig. 8: num. 96 (four white blocks), num. 92c (one white block) and numeral 92 (all the diagonally shaded blocks) which exposes via the white blocks which corresponds to an aperture which functions as a shutter as mentioned in col. 15, lines 47-49.

With regard to "In stark contrast, the invention of claim 1 is directed to capturing only a single image of an object in response to application of a shutter exposure pattern." Bacs is directed to capturing frames which can be interpreted to mean capturing a single frame of an object in response to application via the method of apertures or the parallax scanning pattern of a shutter exposure pattern as shown in fig. 8: num. 96 (four white blocks), num. 92c (one white block) and numeral 92 (all the diagonally shaded blocks) which exposes via the white blocks which corresponds to an aperture which functions as a shutter as mentioned in col. 15, lines 47-49.

3. Applicant's arguments on pages 9,10 of the remarks filed 4/12/2005 have been fully considered but they are not persuasive.

Regarding applicant's remarks on page 9, 10 which states, "Nowhere does Bacs teach or suggest a plurality of shutter elements pairs, wherein each pairs consists of 'a first shutter element having a first polarization orientation and a second shutter element having a second polarization orientation that is substantially orthogonal to said first polarization orientation.'" However, Bacs does disclose the above statement as addressed in claim 18.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 3,12,13,14 and 15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1,3-7 of copending Application No. 09/908,019. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant application is broader than the claims of application number 09/908,019.

For example independent claim 3 of the instant application is found within dependent claim 3 of application number 09/908,019. Thus, claim 3 of this application is simply a broader version of claim 3 of the co-pending application and they cover common, conflicting subject matter. Similar remarks apply to the other claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 3, lines 3 and 4 states, "a shutter device comprising a plurality of individually addressable shutter element pairs..." which can be interpreted two ways:

1) One shutter device with one shutter element pair of a plurality of shutter element pairs where one address is used for the one shutter element pair.

2) One shutter device with one shutter element pair of a plurality of shutter element pairs where a first address is used for the first shutter element of the shutter element pair and a second address is used for the second shutter element of the shutter element pair.

However, based on the specification page 6, paragraph [0019], lines 3-5 which states, "The memory 124 may include...an address storage 132 that may store addresses of...shutter pairs." and paragraph [0017] which states, "The shutter device 114...comprises...individually addressable shutter elements..."

Thus, based on the above quotations of the specification the second interpretation is assumed for claim 3, lines 3 and 4 for the rest of the office action.



***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1,2,4,5,7-9 and 16-22 are rejected under 35 U.S.C. 102(b) as being anticipated by (Bacs, Jr. et al. (US Patent 5,678,089 A).

Regarding claim 1, Bacs, Jr. et al. discloses a still digital image capturing device (Fig. 13, num. 150 is a camera.) that enables a user to capture a single image (Fig. 13, num. 150 is a camera that captures a single image on a “frame by frame basis” in col. 11, line 18.) of an object (fig. 13, label: “A”), comprising:

a) an electronic imaging sensor device (Fig. 13, num. 22 is an electronic imaging sensor device or “imaging plane” in col. 13, line 41.) comprising:

a1) a plurality of pixels (Fig. 13, num. 22 is an electronic imaging sensor device or “imaging plane” in col. 13, line 41 that comprises an IMAGE FRAME BUFFER 154 of fig. 13 and a “CCD array” in col. 5, line 42. Thus, the IMAGE FRAME BUFFER and the CCD array contains images made of pixels.); and

b) an electronically actuable shutter device (Fig. 13, num. 22 is an electronic imaging sensor device or “imaging plane” in col. 13, line 41 that comprises an electronicall actuable shutter device shown in fig. 13, num. 28 which is an “optical element” in col. 13, line 38 as shown in detail in figure 8 which can be used as a shutter in col. 15, lines 47-49 and is connected to an ACTUATOR 34 of fig. 13.) comprising:

b1) a plurality of individually addressable and actuatable shutter elements (Fig. 13, num. 28 comprises a plurality of individually addressable and actuatable shutter elements shown in fig. 8 which shows a detail of the shutter 28 of fig. 13 where shutter elements 92 are "individually addressed" in col. 10, line 53 and actuatable via ACTUATOR 34 of fig. 13.), each of said plurality of individually addressable shutter elements (The shutter elements 92 of fig. 8) substantially corresponding to at least one of said plurality of pixels (The shutter elements 92 are used to capture the image using the IMAGE FRAME BUFFER and CCD array, thus the shutter elements capture an image that comprises pixels corresponding to the IMAGE FRAME BUFFER and CCD array.);

c) a storage medium (Fig. 13, num. 156 is a storage medium.) that stores a plurality of shutter exposure patterns (Fig. 13, num. 156 is a storage medium that "can readily introduce" in col. 10, lines 63,64 the patterns or "apertures" in col. 10, line 65 as shown in figs. 5(a)-5(d). Note that readily introduce implies that a pattern is stored on the storage medium 156 of fig. 13, because the term "readily introduce" is used in the context of "programmed...computer" in col. 11, line 4 such as fig. 13, num. 156.), each shutter exposure pattern (Shown in figs. 5(a)-5(d).) defining a predefined group of shutter elements (The patterns of figs. 5(a)-5(d) are used to define a predefined group of shutter elements or "cells 92a" in col.10, lines 55-58 of fig. 8 and as shown in fig. 8, as numerals 96 (four white blocks), 92c (one white block) and 92 (all the diagonally shaded blocks) to create patterns of figs. 5(a)-5(d).)

... to be actuated (The patterns of figs. 5(a)-d(d) are used to define a predefined group of shutter elements or "cells 92a" in col.10, lines 55-58 of fig. 8 and as shown in fig. 8, as numerals 96 (four white blocks), 92c (one white block) and 92 (all the diagonally shaded blocks) to create patterns of figs. 5(a)-5(d) to be actuate the cells by a DRIVER in col. 10, lines 51-53.) for illumination (The cells are actuated to be "transparent" in col. 10, lines 51-55.) of said imaging sensor device (Fig. 13, num. 22 is an "imaging plane" in col. 13, line 41 that uses the shutter elements located in numeral 28 for illumination of imaging plane 22.); and

d) a controller (Fig. 13, num. 158: CONTROLLER) that allows a user to select one (The CONTROLLER receives input via a computer 156 of fig. 13 with a user interface as shown in fig. 19, num. 220: USER INTERFACE to select one pattern of patterns shown in figs. 5(a)-5(d).) of said stored plurality of shutter exposure patterns (The CONTROLLER receives input via a computer 156 of fig. 13 with a user interface as shown in fig. 19, num. 220: USER INTERFACE to select one pattern of patterns shown in figs. 5(a)-5(d) of said stored plurality of shutter exposure patterns of fig. 13, num. 156 that is a storage medium that "can readily introduce" in col. 10, lines 63,64 the patterns or "apertures" in col. 10, line 65 as shown in figs. 5(a)-5(d).), and which applies the selected shutter exposure pattern (Fig. 13, num. 158: CONTROLLER applies the selected shutter exposure pattern of fig. 5(a).) to said shutter device (The pattern of fig. 5(a) is applied to fig. 13, num. 28 which is an optical element that corresponds to the claimed shutter device.) to allow light reflected from the object (fig. 13, label "A") whose image is to be captured (via fig. 13,num. 22)...

... to illuminate (Light is allowed thru fig. 13,num. 28 via an aperture 30.) said imaging sensor (Fig. 13, num. 22 captures an image of an object using light.) through said selected shutter exposure pattern (Fig. 5(a)), wherein the digital still image capturing device captures only a single image of the object in response to the application of the selected shutter exposure pattern (wherein the digital still image capturing device as shown in fig. 13, num. 150 captures only a single image or frame via a "frame-by-frame basis" in col. 11, line 18 of the object as shown in fig. 1,num. 26 in response to the application of the selected or "take[n]" in col. 7, line 27 or "readily introduce[d]" in col. 10, lines 63,64 shutter exposure pattern as shown in fig. 5(a).).

Claim 16 is rejected the same as claim 1. Thus, argument similar to that presented above for claim 1 of a device claim is equally applicable to claim 16 of a method claim.

Regarding claim 2, Bacs, Jr. et al. discloses the apparatus of claim 1, wherein said imaging sensor device (Fig. 13, num. 22 is an "imaging plane" in col. 13, line 41.) comprises a two-dimensional array of pixel elements (Fig. 1 shows num. 22 of fig. 13 as a two-dimensional array.) and said shutter device (Fig. 13, num. 28 is an optical element in col. 13, line 38 that can be used as a shutter in col. 15, lines 47-49 and is connected to an ACTUATOR 34 of fig. 13.) comprises a LCD element (Fig. 8, num.90 is a detailed view of fig. 13,num. 28 which is a "liquid crystal. . .panel" in col. 10, line 50.) comprising:

a) a two-dimensional array of individually addressable and actuatable shutter elements (Fig. 8 shows a detail of the shutter 28 of fig. 13 where shutter elements 92 are "individually addressed" in col. 10, line 53.) corresponding to said two-dimensional array of pixel elements (Fig. 13 shows the shutter elements 28 corresponding with the 2 dimensional array of pixel elements 22.).

Regarding claim 4, Bacs Jr. et al. discloses the apparatus of claim 1, wherein said shutter device (Fig. 13, num. 28 is an optical element in col. 13, line 38 that can be used as a shutter in col. 15, lines 47-49) comprises a microelectromechanical shutter element (The optical element has a "mechanical link" in col. 6, line 1,2.) comprising a two-dimensional array of individually addressable and actuatable shutter elements (Fig. 8 shows a detail of the shutter 28 of fig. 13 where shutter elements 92 are "individually addressed" in col. 10, line 53.).

Regarding claim 5, Bacs Jr. et al. discloses the apparatus of claim 1, further comprising a memory (Fig. 8,num. 94:DRIVER is a program in col. 11, lines 3,4.) including an address storage (The DRIVER that includes addresses that correspond to patterns in col. 10, lines 53-58.) capable of storing one or more shutter element addresses (The DRIVER is capable of storing addresses since the DRIVER is a program and the program has to be on a storage medium.)

Regarding claim 7, Bacs Jr. et al. discloses the apparatus of claim 1., wherein at least one of said shutter exposure patterns (Figs. 6a-6f are patterns.) specify a plurality of exposure time periods (One of the patterns "per second" of figure 6 can be used in col. 3, lines 49,50.) corresponding to a plurality of shutter elements (Fig. 8, num. 90 is used to create the patterns of fig. 6.) to be actuated (Fig. 8,num. 90 also shown in fig. 13,num. 28 is connected to an actuator, fig. 13, num. 34.).

Regarding claim 8, Bacs Jr. et al. discloses the apparatus of claim 1, wherein said shutter device (Fig. 13, num. 28 is an optical element in col. 13, line 38 that can be used as a shutter in 01. 15, lines 47-49) is formed on and is substantially co-planar with said imaging sensor device (Fig. 13,num. 28 is aligned represented as a horizontal line with sensor, fig. 13, num. 22.).

Claims 9 and 17 are rejected the same as claim 8. Thus, argument similar to that presented above for claim 8 is equally applicable to claims 9 and 17.

Regarding claim 18, Bacs, Jr. et al. teaches the method of claim 16, wherein the providing said shutter device step comprises:

a) providing a two-dimensional array of individually addressable shutter elements (As shown in fig. 8),

a1) wherein a pixel unit (An "array" in col. 5, line 42 corresponds to the claimed pixel unit and is used for "imaging plane 22" in col. 5, line 41.) of said imaging sensor device (An "array" in col. 5, line 42 corresponds to the claimed pixel unit and is used for "imaging plane 22" in col. 5, line 41 of said imaging sensor device of fig. 13, num. 22 and is shown in fig. 14,num. 162 wherein fig. 15 is a detail of fig. 14,num. 166 where numeral 170 of fig. 15 also represents the imaging sensor device of fig. 13, num. 22.) is individually addressable (An "array" in col. 5, line 42 corresponds to the claimed pixel unit and is used for "imaging plane 22" in col. 5, line 41 of said imaging sensor device of fig. 13, num. 22 and is shown in fig. 14,num. 162 wherein fig. 15 is a detail of fig. 14,num. 166 where numeral 170 of fig. 15 also represents the imaging sensor device of fig. 13, num. 22 is individually addressable via an "optical element 28" in col. 13, line 38 of fig. 13,num. 28 which is shown in detail in fig. 8 that "individually address[es]" in col. 10,line 53 the squares of fig. 8,num. 92 to be "imaged on imaging plane 22" in col. 8, line 14.),

a2) wherein a first shutter element (Fig. 16(b), upper num. 190 is a first shutter element because it is an element that modifies a shutter's output represented in fig. 15, num. 188 as a series of lines.) of said pixel unit (Fig. 16(b), upper num. 190 is a first shutter element because it is an element that modifies a shutter's output represented in fig. 15, num. 188 as a series of lines of said "array" in col. 5, line 42, which corresponds to the claimed pixel unit, and is used for "imaging plane 22" in col. 5, line 41 and shown in fig. 15, num. 170.) polarizes light (Fig. 16(b), upper num. 190 is a first shutter element, because it is an element that modifies a shutter's output represented in fig. 15, num. 188 as a series of lines of said "array" in col. 5, line 42, which corresponds to the claimed pixel unit, and the array is used for the "imaging plane 22" in col. 5, line 41 and shown in fig. 15, num. 170, that polarizes or "rotate" in col. 14, line 11 light represented as a series of horizontal lines from numerals 170-174 in fig. 15 and in fig. 16(b) as two lines 196. Note that polarization is a form of rotation or orientation.)...



... according to a first polarization orientation (Fig. 16(b), upper num. 190 is a first shutter element, because it is an element that modifies a shutter's output represented in fig. 15, num. 188 as a series of lines of said "array" in col. 5, line 42, which corresponds to the claimed pixel unit, and the array is used for the "imaging plane 22" in col. 5, line 41 and shown in fig. 15, num. 170, that polarizes or "rotate" in col. 14, line 11 light represented as a series of horizontal lines from numerals 170-174 in fig. 15 and in fig. 16(b) as two lines 196 according to a first polarization orientation of 90 degrees, which is implicit based on the discussion of fig. 16(c) in col. 14, lines 26-28, rotated from a "correct orientation [of 180 degrees]" in col.14, line 11.) and a second shutter element of said pixel unit polarizes light according to a second polarization orientation (Fig. 16(b), lower num. 190 is a second shutter element, because it is an element that modifies a shutter's output represented in fig. 15, num. 188 as a series of lines of said "array" in col. 5, line 42, which corresponds to the claimed pixel unit, and the array is used for the "imaging plane 22" in col. 5, line 41 and shown in fig. 15, num. 170, that polarizes or "rotate" in col. 14, line 11 light represented as a series of horizontal lines from numerals 170-174 in fig. 15 and in fig. 16(b) as two lines 196 according to a second polarization orientation of 90 degrees, which is implicit based on the discussion of fig. 16(c) in col. 14, lines 26-28, rotated from a "correct orientation [of 180 degrees]" in col.14, line 11.)...

...that is substantially orthogonal to said first polarization orientation (Fig. 16(b), lower num. 190 is a second shutter element, because it is an element that modifies a shutter's output represented in fig. 15, num. 188 as a series of lines of said "array" in col. 5, line 42, which corresponds to the claimed pixel unit, and the array is used for the "imaging plane 22" in col. 5, line 41 and shown in fig. 15, num. 170, that polarizes or "rotate" in col. 14, line 11 light represented as a series of horizontal lines from numerals 170-174 in fig. 15 and in fig. 16(b) as two lines 196 according to a second polarization orientation of 90 degrees, which is implicit based on the discussion of fig. 16(c) in col. 14, lines 26-28, rotated from a "correct orientation [of 180 degrees]" in col.14, line 11 that is substantially orthogonal to said first polarization orientation because the first orientation of light, upper numeral 196, was rotated 90 degrees using the device of fig. 16(b), upper numeral 190, into lower device 190 where the second orientation of light is formed using a device, lower numeral 196, to rotate another 90 degrees to be received in num. 162.),

a2) wherein a first shutter element (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5,num 102 as two white rectangles with a dotted cross pattern with the white rectangle closer to label Analyzer 180 as the first shutter element.) of said pixel unit polarizes light according to a first polarization orientation (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5,num 102 as two white rectangles with a dotted cross pattern with the white rectangle closer to the word label: "Analyzer 180" as the first shutter element having a first polarization orientation as indicated by the crossed arrows that correspond to output arrows of the white rectangle closer to the word label: "Analyzer 180.")...

...and a second shutter element (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5,num 102 as two white rectangles with a dotted cross pattern with the white rectangle closer to the word label: "Analyzer 180" as the first shutter element having a first polarization orientation as indicated by the crossed arrows that correspond to output arrows of the white rectangle closer to the word label: "Analyzer 180" and a second element or white rectangle closer to the word label: "Transform Shutter Elements 102".) of said pixel unit polarizes light according to a second polarization orientation (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5,num 102 as two white rectangles with a dotted cross pattern with the white rectangle closer to the word label: "Analyzer 180" as the first shutter element having a first polarization orientation as indicated by the crossed arrows that correspond to output arrows of the white rectangle closer to label: "Analyzer 180" and a second element or a second white rectangle closer to the word label: "Transform Shutter Elements 102" having a second polarization as shown in the second white rectangle closer to the word label" Transform Shutter Elements 102" as two crossed arrows that corresponds to the output of the second white rectangle closer to the word label" Transform Shutter Elements 102.)...

... that is substantially orthogonal (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5,num 102 as two white rectangles with a dotted cross pattern with the white rectangle closer to the word label: "Analyzer 180" as the first shutter element having a first polarization orientation as indicated by the crossed arrows that correspond to output arrows of the white rectangle closer to label: "Analyzer 180" and a second element or a second white rectangle closer to the word label: "Transform Shutter Elements 102" having a second polarization as shown in the second white rectangle closer to the word label "Transform Shutter Elements 102" as two crossed arrows, which corresponds to the output of the second white rectangle closer to the word label" Transform Shutter Elements 102, that is substantially "orthogonal" in col. 14, line 55 or "rotated 90 degrees" in col. 14, line 59.)...

... to said first polarization orientation (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5,num 102 as two white rectangles with a dotted cross pattern with the white rectangle closer to the word label: "Analyzer 180" as the first shutter element having a first polarization orientation as indicated by the crossed arrows that correspond to output arrows of the white rectangle closer to label: "Analyzer 180" and a second element or a second white rectangle closer to the word label: "Transform Shutter Elements 102" having a second polarization as shown in the second white rectangle closer to the word label "Transform Shutter Elements 102" as two crossed arrows, which corresponds to the output of the second white rectangle closer to the word label "Transform Shutter Elements 102", that is substantially "orthogonal" in col. 14, line 55 or "rotated 90 degrees" in col. 14, line 59 to said first polarization orientation of the white rectangle closer to the word label : "Analyzer 180."), and

a3) wherein the method (of fig. 16(b)) provides a substantially non-polarized light (or not rotated light or "rotate 180... [degrees]...back" in col. 14, line 11) to said imaging sensor device (Fig. 13,num. 22 or fig. 15,num. 170 that is included in fig. 16(b), num. 162.).

Claim 19 is rejected the same as claim 5. Thus, argument similar to that presented above for claim 5 is equally applicable to claim 19.

Claim 20 is rejected the same as claim 7. Thus, argument similar to that presented above for claim 7 is equally applicable to claim 20.

Regarding claim 21, Bacs, Jr. Et al. discloses the apparatus of claim 1, wherein at least one of said shutter exposure patterns (Fig. 5(a) is a shutter pattern.) specifies a first group of shutter elements (Fig. 5(a) is a shutter pattern that specified a first group of shutter elements as represented in fig. 8, num. 96 (four white squares).) and a second group of shutter elements (Fig. 5(a) is a shutter pattern that specified a first group of shutter elements as represented in fig. 8, num. 96 (four white squares) and a second group of shutter elements represented in fig. 8,num. 92c (one white square) via a “combination” in col. 15, line 43.), wherein no shutter element included (as shown in fig. 8) in the first group (fig. 8, num. 96 (four white squares)) is included (as shown in fig. 8) in the second group (fig. 8,num. 92c (one white square)), and wherein said at least one (Fig. 5(a) is a shutter pattern.) of said shutter exposure patterns (Figs. 5(b)-5(d)) also specifies a first exposure time period (Fig. 5(a) is a shutter pattern that is a “momentary lens aperture[ ]” in col. 15,line 44) for the first group of shutter elements and a second exposure time period (The second group of shutter elements represented in fig. 8,num. 92c (one white square) that is a “momentary lens aperture[ ]” in col. 15,line 44)...

...for the second group of shutter elements, wherein the first exposure time period is greater than the second exposure time period (Bacs, Jr. et al. does not directly state wherein the first exposure time period is greater than the second exposure time period, but does say that a momentary lens aperture is created in the vertical direction, horizontal direction and/or both horizontal and vertical directions which implies that the lens aperture/pattern momentarily appears in the vertical direction and disappears and a second aperture/pattern reappears in the horizontal direction or two lens apertures/patterns can momentarily appear in both the horizontal and vertical directions and disappear as implied in col. 15, lines 40-47.

Regarding claim 22, Bacs, Jr. et al. discloses the apparatus of claim 21, wherein said at least one of said shutter exposure patterns further specifies a third group of shutter elements ("stationary lens apertures" in col. 10, lines 64,65.) and third exposure time period for the third group of shutter elements, wherein the third exposure time period is greater than the first exposure time period (Bacs, Jr. et al. does not directly disclose "a third exposure time period for the third group of shutter elements, wherein the third exposure time period is greater than the first exposure time period," but does disclose "stationary lens apertures" in col. 10, lines 64,65 which implicitly functions the same as a third exposure time period for the third group of shutter elements, wherein the third exposure time period is greater than the first exposure time period. That is, an lens aperture/pattern that remains stationary relative to other apertures/patterns; thus the time period for the stationary lens apertures/patterns is greater than the momentary lens apertures/patterns mentioned in claim 21.).

10. Claims 3 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Satorius (US Patent 6,026,053 A).

Regarding claim 3, Satorius discloses an imaging module for a digital still image capturing device, comprising:

a) a shutter device (Fig. 5, num. 100: Transform Plane Shutter Array) comprising:

a1) a plurality of individually addressable shutter element pairs (Fig. 5, num. 102: Transform Shutter Elements is a device that has shutter element pairs as shown in figure 5 which is "of a plurality of independently controlled and...addressed shutter elements...(col. 14, lines 19,20)".), wherein each pair of shutter elements (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5,num 102 as two white rectangles with a dotted cross pattern.) consists of a first shutter element (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5,num 102 as two white rectangles with a dotted cross pattern with the white rectangle closer to label Analyzer 180 as the first shutter element.) having a first polarization orientation (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5,num 102 as two white rectangles with a dotted cross pattern with the white rectangle closer to the word label: "Analyzer 180" as the first shutter element having a first polarization orientation as indicated by the crossed arrows that correspond to output arrows of the white rectangle closer to the word label: "Analyzer 180.")...



... and a second shutter element (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5,num 102 as two white rectangles with a dotted cross pattern with the white rectangle closer to the word label: "Analyzer 180" as the first shutter element having a first polarization orientation as indicated by the crossed arrows that correspond to output arrows of the white rectangle closer to the word label: "Analyzer 180" and a second element or white rectangle closer to the word label: "Transform Shutter Elements 102".) having a second polarization orientation (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5,num 102 as two white rectangles with a dotted cross pattern with the white rectangle closer to the word label: "Analyzer 180" as the first shutter element having a first polarization orientation as indicated by the crossed arrows that correspond to output arrows of the white rectangle closer to label: "Analyzer 180" and a second element or a second white rectangle closer to the word label: "Transform Shutter Elements 102" having a second polarization as shown in the second white rectangle closer to the word label" Transform Shutter Elements 102" as two crossed arrows that corresponds to the output of the second white rectangle closer to the word label" Transform Shutter Elements 102.)...

... that is substantially orthogonal (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5,num 102 as two white rectangles with a dotted cross pattern with the white rectangle closer to the word label: "Analyzer 180" as the first shutter element having a first polarization orientation as indicated by the crossed arrows that correspond to output arrows of the white rectangle closer to label: "Analyzer 180" and a second element or a second white rectangle closer to the word label: "Transform Shutter Elements 102" having a second polarization as shown in the second white rectangle closer to the word label "Transform Shutter Elements 102" as two crossed arrows, which corresponds to the output of the second white rectangle closer to the word label" Transform Shutter Elements 102, that is substantially "orthogonal" in col. 14, line 55 or "rotated 90 degrees" in col. 14, line 59.)...

... to said first polarization orientation (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5, num 102 as two white rectangles with a dotted cross pattern with the white rectangle closer to the word label: "Analyzer 180" as the first shutter element having a first polarization orientation as indicated by the crossed arrows that correspond to output arrows of the white rectangle closer to label: "Analyzer 180" and a second element or a second white rectangle closer to the word label: "Transform Shutter Elements 102" having a second polarization as shown in the second white rectangle closer to the word label "Transform Shutter Elements 102" as two crossed arrows, which corresponds to the output of the second white rectangle closer to the word label "Transform Shutter Elements 102", that is substantially "orthogonal" in col. 14, line 55 or "rotated 90 degrees" in col. 14, line 59 to said first polarization orientation of the white rectangle closer to the word label : "Analyzer 180."); and

b) an electronic imaging sensor device having a two-dimensional array of pixel sensors (As shown in fig. 1, num. 140: Photodetector Array), wherein each shutter element pair (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5, num 102 as two white rectangles with a dotted cross pattern.) corresponds to a pair of pixel sensors (Fig. 5, num. 102: Transform Shutter Elements is a pair as shown in figure 5, num 102 as two white rectangles with a dotted cross pattern or an "analog version of the data page 74" in col. 15, line 67 to col. 16, line 1 contains "...[an analog version of] storage pixels **76** within a data page **74**." in col. 15, lines 62,63 that "correspond" in col. 15, line 62 to a pair of pixel sensors or "...sensor elements (pixels)..." in col. 15, lines 60,61.).

Regarding claim 12, Satorius discloses the apparatus of claim 3, wherein said shutter device (Fig. 5, num. 100: Transform Plane Shutter Array) comprises:

a) a microelectromechanical shutter element ("mechanic-cal shutter" in col. 1, lines 58,59 comprising:

a1) a two-dimensional array ("array" in col. 1, line 60) of individually addressable shutter elements ("lenslets" in col. 1, line 60).

Regarding claim 13, Satorius discloses the apparatus of claim 3, further comprising:

a) a memory ("register" in col. 14, line 33) including an address storage ("a computer" in col. 14, line 34) capable of storing one or more shutter element addresses ("a computer" in col. 14, line 34 uses the above mentioned register and is capable of storing one or more shutter element addresses.).

Regarding claim 14, Satorius discloses the apparatus of claim 3, further comprising:

a) a memory (Fig. 1, num. 60: Data Card) including a pattern storage (Fig. 1, num. 60: Data Card including a pattern storage 78: Page Area.) capable of storing one or more shuttering patterns (Fig. 1, num. 60: Data Card including a pattern storage 78: Page Area capable of storing a shuttering pattern as shown in fig. 3A, num. 156: Amplitude Pattern of Information.)...

... that specify a plurality of shutter addresses of shutter elements to be actuated (Fig. 1, num. 60: Data Card including a pattern storage 78: Page Area capable of storing a shuttering pattern as shown in fig. 3A, num. 156: Amplitude Pattern of Information that specify a plurality of shutter addresses of shutter elements to be actuated as shown in fig. 1A, label: Transform Shutter Element where an actuated shutter is black shape that corresponds to the shape of fig. 3A.).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satorius (US Patent 6,026,053 A) in view of Bacs, Jr. et al. (US Patent 5,678,089 A).

Regarding claim 15, Satorius teaches the apparatus of claim 3, further comprising:

a) a memory (Fig. 1, num. 60: Data Card) including a pattern storage (Fig. 1, num. 60: Data Card including a pattern storage 78: Page Area.) capable of storing one or more shuttering patterns (Fig. 1, num. 60: Data Card including a pattern storage 78: Page Area capable of storing a shuttering pattern as shown in fig. 3A, num. 156: Amplitude Pattern of Information.) that specify a plurality of exposure times corresponding to a plurality of shutter elements to be actuated.

Satorius does not teach the remaining limitation of "that specify a plurality of exposure times corresponding to a plurality of shutter elements to be actuated."

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However, Satorious teaches "one [exposure] time" in col. 14, line 28 that corresponds to one shutter element to be actuated as mentioned in col. 14, lines 25-28.

However, Satorious does suggest that "smaller shutter elements" in col. 15, line 5 can be used in "synchronization" in col. 15, line 5 and "simultaneously" in col. 15, line 8 in the place of one larger shutter element to perform the same operation.

Bacs, Jr. et al. teaches a plurality of shutter elements 92 a of fig. 8 that can be used simultaneously as suggested by Satorius and the remaining limitation in claim 3 of:

a) a plurality of exposure times corresponding to a plurality of shutter elements to be actuated (Fig. 8, num. 92a corresponds to four white squares that represent 4 shutter elements or "lens aperture[s]" in col. 8, line 57 or "optical...elements" in col. 15, lines 47,48 and is implemented using "exposure techniques" in col. 8, line 53 "to create momentary lens aper-tures [with respect to time]" in col. 15, lines 44,45).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Satorius' plurality of smaller shutters with Bacs, Jr et al.'s four shutter elements of fig. 8, num. 92a, because Bac, Jr et al.'s four shutter elements can be used to achieve the Satorius' goal of using smaller shutter elements that can be used in "synchronization" in col. 15, line 5 and "simultaneously" in col. 15, line 8 in the place of one larger shutter element.

***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 6-3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DR  
Dennis Rosario  
Unit 2621

*supay*  
JOSEPH MANUEL  
PRIMARY EXAMINER